

# Mineral Industry Surveys

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## MOLYBDENUM IN MAY 2005

Domestic production of molybdenum in concentrate in May 2005 was about 40% less than that of the previous month and was about 14% more than that of May 2004, according to the U.S. Geological Survey. Producer stocks of molybdenum in concentrate, oxide, and other product forms were about 5,930 metric tons (t) at the beginning of 2005 and 5,780 t at the end of May.

According to Ryan's Notes (2005b), the May monthly average prices for U.S. ferromolybdenum (FeMo) ranged from \$39.389 to \$40.444 per pound of molybdenum content, compared with \$37.333 to \$38.167 in April. European FeMo monthly averages ranged from \$90.222 to \$92.833 per kilogram (kg) of molybdenum content in May as compared with \$78.111 to \$80.111 in April. In May, worldwide molybdenum oxide prices ranged from \$36.278 to \$37.333 per pound versus \$32.278 to \$33.167 in April.

After reviewing record first quarter results, Phelps Dodge Mining Co. presented its case for continued strength in the second quarter. Phelps Dodge expected global molybdenum demand to be strong in the second quarter in metallurgical applications, according to a company official. The chemical sector, he commented, also experienced high growth rates as well, led by desulfurization catalysts. For the year, Phelps Dodge expected to produce about 29,000 t (64 million pounds) of molybdenum as compared with about 26,000 t (57.5 million pounds) in 2004. Chinese requirements drove global demand in the first quarter. Production disruptions at mines in the Huludao district of Liaoning Province in China reduced Chinese output by 25%. Many of those mines remained closed in May owing to safety violations, causing major Chinese producers to purchase molybdenum concentrate on a large scale. Miele estimated disruptions in China were affecting about 11,300 t (25 million pounds) of production in a world market of about 182,000 t (400 million pounds) (Ryan's Notes, 2005a).

Phelps Dodge's Climax Molybdenum Division said it would boost capacity at the Henderson Mine, CO, to about 18,000 t (40 million pounds) of molybdenum per year by mid-2006 from forecast production of 14,500 t (32 million pounds) in 2004. The cost of the expansion at Henderson was estimated at \$20 to \$24 million. As recently as 2001, Henderson's production was only about 8,400 t (18.6 million pounds) and was about 12,700 t (28 million pounds) in 2004. A company spokesman noted that Henderson had many catalyst and chemical customers and that Climax had sufficient roasting capacity to process the increased production (Metal Bulletin, 2005).

U.S.-based miner Golden Phoenix Minerals, Inc. announced it had obtained the financing needed to relocate a 100-short-ton mill and to begin mining the Sylvia vein molybdenum deposit at its Ashdown Mine in Nevada. Golden Phoenix hoped to bring the mine and mill online in the near term to take advantage of historically high molybdenum prices. Construction of the mill and support facilities was expected to take about 3 months. Golden Phoenix executed a life-of-mine brokerage agreement with United Kingdom-based trading house Derrek Raphael to purchase all molybdenum-bearing concentrates produced at Ashdown (Platts Metals Week, 2005).

Included in this Mineral Industry Surveys are U.S. production and shipments of molybdenum concentrates and materials, U.S. consumption by end use, stocks of molybdenum material in April and May 2005, and trade data for March and April 2005.

## References Cited

- Metal Bulletin, 2005, Climax to boost molybdenum production: Metal Bulletin, no. 8895, May 30, p. 12.  
Platts Metals Week, 2005, Nevada moly project gets funding: Platts Metals Week, v. 76, no. 20, May 16, p. 4.  
Ryan's Notes, 2005a, PD sees strong second quarter for Mo: Ryan's Notes, v. 11, no. 18, May 2, p. 1.  
Ryan's Notes, 2005b, [untitled]: Ryan's Notes, v. 11, no. 23, June 6, p. 10.

TABLE 1  
U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS<sup>1</sup>

(Metric tons, contained molybdenum)

	2004		2005		
	January- December <sup>p</sup>	January- May	April	May	January- May
Production	42,100	15,700	6,890	4,120	24,400
Shipments: <sup>2</sup>					
Domestic	31,100	11,900	3,450	2,930	15,000
Export	11,100	4,030	2,280	1,560	8,470

<sup>p</sup>Preliminary.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>As reported by producers.

TABLE 2  
U.S. REPORTED PRODUCTION AND SHIPMENTS OF MOLYBDENUM PRODUCTS<sup>1</sup>

(Metric tons, contained molybdenum)

	2004		2005		
	January- December <sup>p</sup>	January- May	April	May	January- May
Gross production	66,300	25,400	6,490	6,880	33,000
Internal consumption <sup>2</sup>	42,000	15,800	4,050	4,490	21,000
Gross shipments	39,300	15,100	3,830	4,010	20,200

<sup>p</sup>Preliminary.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

TABLE 3  
U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS<sup>1</sup>

(Kilograms, contained molybdenum)

End use	Molybdc oxides	Ferro molyb- denum <sup>2</sup>	Ammonium and sodium molybdate	Molyb- denum scrap	Other	Total
2005, April:						
Steel:						
Carbon	13,900	W	--	--	W	13,900
High-strength low-alloy	24,100	21,200 <sup>r</sup>	--	--	11,300	56,600 <sup>r</sup>
Stainless and heat-resisting	162,000	67,800	--	W	6,510	236,000
Full alloy	148,000 <sup>r</sup>	239,000 <sup>r</sup>	--	--	1,510	389,000
Tool	61,100	W	--	--	--	61,100
Total	409,000 <sup>r</sup>	328,000 <sup>r</sup>	--	W	19,400	756,000 <sup>r</sup>
Cast irons (gray, malleable, and ductile iron)	W	7,460 <sup>r</sup>	--	--	763	8,230
Superalloys	81,400	W	--	(3)	109,000	191,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	216	3,100	--	--	11	3,330
Mill products made from metal powder <sup>4</sup>	--	--	--	--	154,000	154,000
Cemented carbides and related products <sup>5</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	2,390	2,390
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	11,000	11,000
Other	1,090	31,400 <sup>r</sup>	75,400	1,840	16,800	126,000 <sup>r</sup>
Grand total	569,000 <sup>r</sup>	370,000 <sup>r</sup>	75,400	1,840	313,000	1,330,000
Stocks, April 30, 2005	411,000	227,000 <sup>r</sup>	2,390 <sup>r</sup>	69,200	850,000	1,560,000 <sup>r</sup>
2005, May:						
Steel:						
Carbon	34,000	W	--	--	W	34,000
High-strength low-alloy	24,900	22,200	--	--	11,300	58,400
Stainless and heat-resisting	160,000	67,800	--	W	6,510	234,000
Full alloy	170,000	228,000	--	--	1,510	400,000
Tool	80,600	W	--	--	--	80,600
Total	470,000	318,000	--	W	19,400	808,000
Cast irons (gray, malleable, and ductile iron)	W	9,370	--	--	763	10,100
Superalloys	69,500	W	--	(3)	130,000	200,000
Alloys: (other than steels, cast irons, and superalloys)						
Welding materials (structural and hard-facing)	--	W	--	--	6	6
Other alloys	137	2,860	--	--	11	3,010
Mill products made from metal powder <sup>4</sup>	--	--	--	--	142,000	142,000
Cemented carbides and related products <sup>5</sup>	--	--	--	--	W	W
Chemical and ceramic uses:						
Pigments	--	--	W	--	--	W
Catalysts	77,300	--	W	--	W	77,300
Other chemicals	--	--	--	--	1,090	1,090
Miscellaneous and unspecified uses:						
Lubricants	--	--	--	--	10,700	10,700
Other	1,090	33,600	72,700	1,840	16,800	126,000
Grand total	618,000	364,000	72,700	1,840	321,000	1,380,000
Stocks, May 31, 2005	422,000	193,000	3,630	48,300	855,000	1,520,000

<sup>1</sup>Revised. W Withheld to avoid disclosing company proprietary data; included in "Other" of the "Miscellaneous and unspecified uses" category. -- Zero.

<sup>2</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>3</sup>Includes calcium molybdate.

<sup>4</sup>Included in "Other" of the "Superalloys" category.

<sup>5</sup>Includes ingot, wire, rod, and sheet.

<sup>6</sup>Includes construction, mining, oil and gas, metalworking machinery.

TABLE 4  
U.S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES  
(including roasted concentrate), BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2004		2005		
	January-December	January-April	March	April	January-April
Australia	30,500	9,250	--	--	82,200
Austria	1,310,000	124,000	--	--	2,590
Belgium	6,470,000	984,000	237,000	539,000	876,000
Brazil	31,000	11,000	--	--	4,070
Canada	1,370,000	229,000	213,000	648,000	1,270,000
Chile	1,380,000	926,000	--	--	110,000
China	36,000	--	--	1,100,000	1,160,000
Costa Rica	26,700	13,800	1,400	--	2,620
India	430	--	33,000	--	34,400
Italy	--	--	--	--	35,100
Japan	5,730,000	615,000	123,000	112,000	516,000
Korea, Republic of	95,200	25,000	388	1,350	5,770
Mexico	3,910,000	271,000	105,000	88,000	906,000
Netherlands	14,100,000	1,870,000	3,170,000	915,000	6,160,000
Sweden	38,200	--	--	--	--
Taiwan	19,200	8,830	785	--	3,600
United Kingdom	8,910,000	2,170,000	811,000	350,000	3,140,000
Other	2,770,000	297,000	--	136,000	144,000
Total	46,200,000	7,550,000	4,700,000	3,890,000	14,400,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 5  
U.S. EXPORTS OF FERROMOLYBDENUM, BY COUNTRY<sup>1</sup>

(Kilograms, contained molybdenum)

Country	2004		2005		
	January-December	January-April	March	April	January-April
Australia	1,090	818	--	--	--
Brazil	--	--	--	7,430	7,430
Canada	870,000	309,000	68,100	122,000	522,000
France	10,100	--	--	--	--
Indonesia	381	--	--	5,770	5,930
Mexico	33,700	12,100	408	--	4,530
Netherlands	--	--	--	--	33,300
Sweden	9,150	--	--	--	--
United Kingdom	491	--	--	--	--
Total	925,000	322,000	68,500	135,000	573,000

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS<sup>1</sup>

(Kilograms, unless otherwise specified)

Material	January-December 2004			April 2005			January-April 2005		
	Gross weight	Contained molybdenum	Value <sup>2</sup> (thousands)	Gross weight	Contained molybdenum	Value <sup>2</sup> (thousands)	Gross weight	Contained molybdenum	Value <sup>2</sup> (thousands)
Ore and concentrates roasted	7,580,000	4,710,000	\$133,000	1,140,000	712,000	\$50,700	3,540,000	2,200,000	\$151,000
Ore and concentrates other	9,330,000	4,070,000	135,000	1,250,000	636,000	41,200	5,420,000	2,370,000	167,000
Molybdenum chemicals:									
Oxides and hydroxides	822,000	NA	15,800	93,300	NA	3,340	528,000	NA	13,000
Molydates of ammonium	1,940,000	1,330,000	18,400	278,000	210,000	5,120	1,320,000	920,000	16,300
Molydates (all others)	254,000	116,000	1,430	546	109	5	59,400	15,900	858
Molybdenum orange	1,030,000	NA	4,760	70,700	NA	335	282,000	NA	1,520
Ferromolybdenum	8,310,000	5,310,000	158,000	547,000	352,000	23,900	2,540,000	1,610,000	106,000
Molybdenum powders	139,000	95,200	4,930	10,000	8,090	762	25,900	21,800	2,070
Molybdenum unwrought	151,000	151,000	3,520	195	300	13	11,800	13,000	914
Molybdenum waste and scrap	454,000	415,000	10,200	38,800	38,500	2,800	199,000	198,000	14,200
Molybdenum wire	20,500	NA	2,010	1,530	NA	219	7,720	NA	1,150
Molybdenum other	132,000	NA	13,700	7,640	NA	1,290	55,800	NA	6,810
Total	30,200,000	16,200,000	501,000	3,440,000	1,960,000	130,000	14,000,000	7,350,000	481,000

NA Not available.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Customs value.

Source: U.S. Census Bureau.